CLAIMS

What is claimed is:

1.   A method of transforming profile connection space (PCS) values to destination color space values, comprising:

using the PCS values to produce look-up table inputs that have a range in each of three dimensions of (0+INT-E0) to (MAX-INT+E1);

using the look-up table inputs and a look-up table to generate destination color space values, wherein the look-up table includes GxGxG nodes and is comprised of an inner portion having (G-2)x(G-2)x(G-2) nodes and an outer portion having [GxGxG - (G-2)x(G-2)x(G-2)] nodes that surrounds the inner portion, and wherein the nodes of the outer portion comprises replicas of associated outermost nodes of the inner portion;

wherein INT is a grid interval of the look-up table, each of E0 and E1 is less than INT, and MAX is a positive integer.

2.   The method of claim 1 wherein MAX comprises 2^N-1, wherein N is selected from a group consisting of the integers 8, 16 and 24.

3.   The method of claim 1 wherein using the look-up table inputs and a look-up table to generate destination color space values comprises using the look-up table inputs and a look-up table to tetrahedrally interpolate destination color space values, wherein the look-up table includes GxGxG nodes and is comprised of an inner portion having (G-2)x(G-2)x(G-2) nodes and an outer portion having [GxGxG - (G-2)x(G-2)x(G-2)] nodes that surrounds the inner portion, and wherein the nodes of the outer portion comprises replicas of associated outermost nodes of the inner portion.

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4.   The method of claim 1 wherein using the PCS values to produce look-up table inputs comprises:

multiplying the PCS values by a 3X3 matrix to produce converted PCS values; and

adjusting the converted PCS values pursuant to tonal reproduction curves to produce the look-up table inputs.

5.   A method of mapping first device dependent color space values to second device dependent color space values, comprising:

using first tonal reproduction curves and a first 3x3 matrix to map first device dependent color space input values to profile connection space values;

using a second 3x3 matrix that is an inverse of the first 3x3 matrix and second tonal reproduction curves that are an inverse of the first tonal reproduction curves to map the profile connection space values to intermediate color space values, wherein a range of the intermediate color space values along each of three dimensions is from (0+INT-E0) to (MAX-INT+E1);

using a GxGxG look-up table to map the intermediate color space values to second device dependent color space output values, wherein the outermost nodes of the GxGxG look-up table comprise replicas of the outermost nodes of a (G-2)x(G-2)x(G-2) inner portion of the GxGxG look-up table; and

wherein each of E0 and E1 is greater than 0 and less than a grid interval INT of the GxGxG look-up table along each of three dimensions, wherein MAX is a positive integer, and wherein a range of indexes associated with the GxGxG look-up table along each of three dimensions is 0 to MAX.

6. The method of claim 5 wherein using a second 3x3 matrix comprises using a second 3x3 matrix that is an inverse of the first 3x3 matrix and second tonal reproduction curves that are an inverse of the first tonal reproduction curves to map the profile connection space values to intermediate color space values that comprise approximate replicas of the first device dependent color space input values, wherein a range of the intermediate color space values along each of three dimensions is from (0+INT-E0) to (MAX-INT+E1).

7. The method of claim 5 wherein using a second 3x3 matrix comprises using a second 3x3 matrix that is an inverse of the first 3x3 matrix and second tonal reproduction curves that are an inverse of the first tonal reproduction curves to map the profile connection space values to intermediate color space values that comprise approximate scaled replicas of the first device dependent color space input values, wherein a range of the intermediate color space values along each of three dimensions is from (0+INT-E0) to (MAX-INT+E1).

8. A method of producing a color device profile comprising:

expanding a color look-up table to an expanded color look-up table having outermost nodes that comprise replicas of closest inner nodes; and

scaling inputs for the expanded color look-up table such that a range of the inputs is greater than a range of indexes associated with inner nodes that are closest to the outermost nodes.

9. A color device profile made in accordance with the method of claim 8.

10.   A color device profile comprising:

a buffered color look-up table having outermost nodes that are outside an inner portion, and wherein the outermost nodes replicate nodes of the inner portion that are closest to the outermost nodes; and

input tonal reproduction curves having a range that is smaller than an input range associated with the buffered color look-up table and greater than an input range associated with the inner portion.